

### REMARKS

Applicants respectfully request reconsideration of this application in view of the amendments and remarks made herein. Claims 1-13 are pending in the application.

Claims 1-13 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner objected to the language "selected harmful substances" as unclear. However, a person of ordinary skill in the art would understand the claim as drafted to cover "process waste gases containing selected harmful substances" as including any known harmful substances found in process waste gases. In particular, the specification identifies process waste gases containing selected harmful substances as including harmful substances from chemical vapor deposition (CVD) and/or etching processes and chamber-cleaning processes. For example, the specification identifies  $\text{SiH}_4$ ,  $\text{PH}_3$  and  $\text{N}_2\text{O}$  in variable oxidation states and concentrations as well as oil vapors and particulate matter such as  $\text{SiO}_2$  as harmful substances of process waste gases coming from low pressure CVD processes. Claims 1 and 10 have been amended to more particularly point out and distinctly claim Applicant's invention by providing more consistent use of the phrase "selected harmful substances." Therefore, it is respectfully requested that the rejection of claims 1-13 be withdrawn.

Claims 1-13 have been rejected under 35 U.S.C. §103(a) as obvious in view of U.S. Patent 6,069,291 (Rossin et al.) further in view of U.S. Patent 4,229,411 (Kisters et al.). According to the Examiner, Rossin et al. discloses a process for the decomposition of perfluoroalkanes to HF and  $\text{CO}_2$  by contacting, in the presence of oxygen, the perfluoroalkanes with a catalyst. According to the Examiner, Kisters et al. discloses a process and apparatus for

the removal by absorption of noxious compounds from waste gases. Therefore the Examiner stated it would have been obvious to use the control method of Kisters et al. for the scrubbing step of Rossin et al. because the control method would automatically control the amount of neutralizing agent for the scrubbing step.

Applicants respectfully disagree and request reconsideration of this rejection of claims 1-13. Rossin et al. is directed to a catalytic process for the decomposition of perfluoroalkanes by contacting the perfluoroalkanes with aluminum oxide at a temperature ranging from about 400 °C to about 1000 °C. Rossin et al. discloses another embodiment wherein the perfluoroalkanes are contacted with aluminum oxide in the presence of water and an oxidizing agent with or without adding additional elements. Therefore, Rossin et al. describes a very specific process for the catalytic decomposition of perfluoroalkanes with aluminum oxide. In contrast, the present invention is directed to a waste gas purification system for cleaning process waste gases. In particular, the present invention is directed to waste gases that are enriched with harmful substances from chemical vapor deposition (CVD) and/or etching processes and chamber cleaning processes, which work according to the principles of thermal decomposition or oxidation in a flame with subsequent washing of the reaction products. Therefore, the present invention uses a first and a second detector tailored to identify selected harmful substances (*see* Specification, page 5, line 3; page 8, line 1-2). This is not disclosed or contemplated by Rossin et al.

Moreover, although the composition of process waste gases are generally known when they result from a single process, the process gases that result from a series of processes is much more complex. The present invention contemplates this and as a result selects from a

spectrum of selected harmful substances as opposed to Rossin et al., which discloses a catalytic process for only one substance, perfluoroalkanes.

Furthermore, Kisters et al. describes a process and apparatus for the absorptive removal of pollutants from waste gases. Continuous adjustments are necessary in Kisters et al. in view of the continuous changes in operating conditions. As a result, Kisters et al. requires a continuous and automatic measurement of the concentration of the components in the gas. In contrast, the present invention is not directed at an absorptive removal of pollutants of waste gases but is directed at gas analyses of all components of the waste gas (i.e., HCl, SO<sub>2</sub> and HF). Moreover, Kisters et al. is directed at the removal of pollutants for waste gases as a result of the combustion of industrial or domestic wastes, which is not an object of the present invention. Therefore, in combination Rossin et al. and Kisters et al. do not disclose or teach the present invention. Moreover, a person of ordinary skill in the art would not have considered the disclosure of the cited references in the manner suggested by the Examiner.

Therefore, in view of the foregoing, Applicants respectfully request withdrawal of the rejection of Claims 1-13 as obvious over U.S. Patent 6,069,291 (Rossin et al.) in view of U.S. Patent 4,229,411 (Kisters et al.).

In view of the foregoing amendments and remarks, all pending claims 1-13 are currently in condition for allowance.

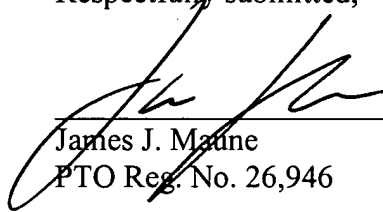
Applicants believe no fee is required. However, the Commissioner is authorized to charge our Deposit Account No. 02-4377 if any fee associated with this communication is required.



FILE NO. A33676-PCT-USA-A  
(066340.0124)  
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Attached hereto is a marked-up version of the changes made to the claims by the  
current amendment. The attached page is captioned "Version with markings to show changes  
made."

Respectfully submitted,



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Enclosures



**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**In the Claims:**

Claims 1 and 10 have been amended as follows:

1. (Amended) A method for purifying process waste gases containing selected harmful substances comprising:

introducing the process waste gases into a waste gas purification system having a reaction chamber, an exit, and operating parameters;

post-treating reaction products leaving the reaction chamber in a sorbtion chamber with an associated washing agent circuit containing washing agent;

measuring with a first detector the type and amount of selected harmful substances in the process waste gas before said waste gases enter the waste gas purification system to generate measuring signals;

determining with a second detector the type and amount of selected harmful substances[, including perfluorocarbons and hydrofluoric acid,] of the reaction products leaving the waste gas purification system at the exit of the purification system to generate measuring signals; and

directly using the measuring signals for adjusting the operating parameters of the waste gas purification system, said operating parameters including amount of combustible gas, amount of oxygen, amount of washing agent in the washing agent circuit, and pH of the washing agent.

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10. (Amended) The method according to Claim 1, wherein if an elevated concentration of [HF]

a selected harmful substance is detected by the second detector then at least one of the pH of the washing agent and the amount of the washing agent is increased.

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